That which is claimed is:

1. A modified polymeric fiber having a length in a longitudinal direction and a cross-section perpendicular to the longitudinal direction, the fiber comprising closed cells, the closed cells having a length in the longitudinal direction of the polymeric fiber and a diameter perpendicular to the longitudinal direction of the fiber, the closed cells having an average length to diameter ratio of less than about 500.

2. The modified polymeric fiber of claim 1 wherein the closed cells have an average length to diameter ratio of less than about 50.

3. The modified polymeric fiber of claim 1 comprising a polyester.

4. The modified polymeric fiber of claim 3 wherein the polyester comprises polyethylene terephthalate.

5. The modified polymeric fiber of claim 1 comprising a polyamide.

6. The modified polymeric fiber of claim 1 comprising a polyolefin.

7. The modified polymer of claim 6 wherein the polyolefin comprises polypropylene.

8. The modified polymeric fiber of claim 1 wherein the closed cells are uniformly distributed throughout the length of the fiber.

9. The modified polymeric fiber of claim 1 wherein the closed cells are uniformly distributed throughout the cross-section of the fiber.

10. The modified polymeric fiber of claim 1 wherein the closed cells are distributed in foamed segments of the fiber and further comprising non-foamed segments devoid of closed cells.

11. The modified polymeric fiber of claim 1, wherein the closed cells are

distributed substantially non-uniformly along the length of the fiber such that predefined zones along the length of the fiber are characterized by predefined different concentrations of closed cells.

12. The modified polymeric fiber of claim 1, wherein the closed cells are distributed substantially non-uniformly within the cross-section of the fiber such that predefined zones within the cross-section are characterized by predefined different concentrations of closed cells.

13. A yarn comprising modified polymeric fibers, each polymeric fiber having a length in a longitudinal direction and a cross-section perpendicular to the longitudinal direction, the yarn having a length in the longitudinal direction of the polymeric fibers and a cross-section perpendicular to the longitudinal direction, the cross-section of the yarn comprising an inner, core section of fibers and an outer, circumferential section of fibers, the fibers comprising closed cells, the closed cells having a length in the longitudinal direction of the polymeric fiber and a diameter perpendicular to the longitudinal direction of the fiber, the closed cells having an average length to diameter ratio of less than about 500.

14. The yarn of claim 13 wherein the closed cells have an average length to diameter ratio of less than about 50.

15. The yarn of claim 13 wherein the fibers comprise a polyester.

16. The yarn of claim 15 wherein the polyester comprises polyethylene terephthalate.

17. The yarn of claim 13 wherein the fibers comprise a polyamide.

18 The yarn of claim 13 wherein the fibers comprise a polyolefin.

19. The yarn of claim 18 wherein the polyolefin comprises polypropylene.

20 The yarn of claim 13 wherein the closed cells are uniformly distributed throughout the length of the fibers.

21. The yarn of claim 13 wherein the closed cells are uniformly distributed throughout the cross-section of the yarn.

22. The yarn of claim 13 wherein the closed cells are selectively distributed throughout the outer, circumferential section of fiber of the cross-section of the yarn.

23. The yarn of claim 13 wherein the closed cells are distributed in foamed segments of the fibers of the yarn and further comprising non-foamed segments of the fibers of the yarn devoid of closed cells.

24. The yarn of claim 13, wherein the closed cells are distributed substantially non-uniformly along the length of the yarn such that predefined zones along the length of the yarn are characterized by predefined different concentrations of closed cells.

25. The yarn of claim 13, wherein the closed cells are distributed substantially non-uniformly within the cross-section of the yarn such that predefined zones within the cross-section are characterized by predefined different concentrations of closed cells.

26. A method to produce a modified polymeric structure comprising the steps of:

selecting a polymeric precursor structure;

impregnating the precursor structure with a fluid at a pressure greater than atmospheric pressure;

heating the precursor structure to a temperature greater than the foaming temperature to induce foaming; and

cooling the foamed structure to a temperature lower than the foaming temperature to terminate foaming;

wherein the foaming temperature comprises the temperature at which foaming occurs at the impregnation pressure.

27. A method to produce a modified polymeric fiber comprising the steps of:

selecting an initial polymeric fiber;

impregnating the initial fiber with a fluid at a pressure greater than atmospheric pressure and at a temperature lower than the foaming temperature;

reducing the pressure to atmospheric pressure and simultaneously maintaining a temperature less than the foaming temperature;

cooling the fluid impregnated polymeric fiber at atmospheric pressure to a temperature lower than the phase change temperature of the fluid;

heating the fluid impregnated polymeric fiber at atmospheric pressure to a temperature above the foaming temperature to induce foaming; and

cooling the foamed polymeric fiber to below the foaming temperature to terminate foaming;

wherein the foaming temperature comprises the temperature at which foaming occurs at the impregnation pressure.

28. The method set forth in claim 27 wherein the fluid comprises carbon dioxide.